

Claims

1. Method for transmission of digital information packets ( $I_1, I_2, \dots, I_M$ ) in a data network from an emitter (BM-SC) to a receiver (UE), with the information packets being transported by means of a transport layer, characterized by the following steps:
  - The information packets to be transmitted ( $I_1, I_2, \dots, I_M$ ) are divided up in the emitter (BM-SC) into one or more data packet groups (GM);
  - Redundancy information in the form of redundancy packets ( $RS_1, RS_2, \dots, RS_L$ ) is inserted into the data packet groups (GM) in each case;
  - The information packets ( $I_1, I_2, \dots, I_M$ ) and the redundancy packets ( $RS_1, RS_2, \dots, RS_L$ ) in the data packet groups (GM) are each supplemented by a signalisation field (AS) in which information is stored with which the position of the relevant information packet ( $I_1, I_2, \dots, I_M$ ) or of the relevant redundancy packet ( $RS_1, RS_2, \dots, RS_L$ ) within the relevant data packet group (GM) can be determined;
  - The data packet groups (GM) are transmitted to the receiver (UE);
  - In the receiver (UE) the signalisation fields (AS) of the received information packets ( $I_1, I_2, \dots, I_M$ ) and redundancy packets ( $RS_1, RS_2, \dots, RS_L$ ) are read out and with the aid of the information in the signalisation fields (AS) the positions of the information packets ( $I_1, I_2, \dots, I_M$ ) and redundancy packets ( $RS_1, RS_2, \dots, RS_L$ ) in the relevant data packet groups (GM) are reconstructed.
2. Method in accordance with claim 1, in which the information is contained in the signalisation fields (AS) in each case

indicating whether an information packet ( $I_1, I_2, \dots, I_M$ ) or a redundancy packet ( $RS_1, RS_2, \dots, RS_L$ ) is present.

3. Method in accordance with claim 1 or 2, in which  
5 information is contained in the signalisation fields (AS) in each case about the data packet group (GM) to which the relevant information packet ( $I_1, I_2, \dots, I_M$ ) or redundancy packet ( $RS_1, RS_2, \dots, RS_L$ ) belongs.
4. Method in accordance with one of the previous claims, in  
10 which the information is contained in the signalisation fields as to whether the relevant information packet ( $I_1, I_2, \dots, I_M$ ) or redundancy packet ( $RS_1, RS_2, \dots, RS_L$ ) is the last information packet or redundancy packet in the relevant data packet group (GM).
- 15 5. Method in accordance with one of the previous claims, in which the data packet groups are arranged in each case in the form of a data matrix (GM) with a plurality of data fields in a plurality of rows (K) for the information packets and a plurality of rows (L) for the redundancy  
20 packets as well as a plurality of columns (J) for information and redundancy packets.
6. Method in accordance with claim 5, in which the data fields are 8-bit fields.
7. Method in accordance with claim 5 or 6, in which the  
25 information packets ( $I_1, I_2, \dots, I_M$ ) and/or the redundancy packets ( $RS_1, RS_2, \dots, RS_L$ ) contain in the signalisation field (AS) the column and/or row address of the relevant information packet ( $I_1, I_2, \dots, I_M$ ) or redundancy packet  $RS_1, RS_2, \dots, RS_L$  in the data  
30 matrix.

8. Method in accordance with one of the claims 5 to 7, in which the redundancy packets (RS\_1, RS\_2, ..., RS\_L) occupy one row of the corresponding data matrix (GM) in each case.

9. Method in accordance with one of the claims 5 to 8, in

5 which the row length (J) of the data matrix (GM) is reconstructed from the length of a correctly received redundancy packet (RS\_1, RS\_2, ..., RS\_L).

10. Method in accordance with one of the claims 5 to 9 in combination with claim 7, in which one or more

10 signalisation fields (AS), each comprising two parameters selected from the parameter set comprising the relevant redundancy packet number, contain the row address of the relevant redundancy packet (RS\_1, RS\_2, ..., RS\_L) and the number of rows (K), in which information packets are contained, and with the aid of the two parameters in the signalisation field (AS), the parameter of the parameter set is determined which is not contained in the signalisation field(AS).

11. Method in accordance with claim 10, in which the number of

20 the rows of the data matrix (GM) which are needed at the receiver for received redundancy packets (RS\_1, RS\_2, ..., RS\_L) is reconstructed with the aid of the correctly received redundancy packets with the highest redundancy packet number and its row address.

25 12. Method in accordance with one of the previous claims, in which the redundancy packets (RS\_1, RS\_2, ..., RS\_L) comprise Reed-Solomon codes.

13. Method in accordance with one of the previous claims, in which the signalisation fields (AS) are 24-bit fields.

30 14. Method in accordance with one of the previous claims, in

which the receiver (UE), after receiving the last information packet ( $I_1, I_2, \dots, I_M$ ) and the last redundancy packet ( $RS_1, RS_2, \dots, RS_L$ ) of a data packet group (GM), waits for a predetermined interval for outstanding information packets ( $I_1, I_2, \dots, I_M$ ) or redundancy packets ( $RS_1, RS_2, \dots, RS_L$ ) of the data packet group (GM).

15. Method in accordance with one of the previous claims, in which the data network comprises a mobile radio network.

10 16. Emitter for sending digital information packets in a method in accordance with one of the previous claims, with the emitter (BM-SC) being embodied to enable it to carry out the following steps:

- The information packets to be transmitted ( $I_1, I_2, \dots, I_M$ ) are divided up into one or more data packet groups (GM);
- Redundancy information in the form of redundancy packets ( $RS_1, RS_2, \dots, RS_L$ ) is inserted into the data packet groups (GM) in each case;
- The information packets ( $I_1, I_2, \dots, I_M$ ) and the redundancy packets ( $RS_1, RS_2, \dots, RS_L$ ) in the data packet groups (GM) are each supplemented by a signalisation field (AS) in which information is stored with which the position of the relevant information packet ( $I_1, I_2, \dots, I_M$ ) or of the relevant redundancy packet ( $RS_1, RS_2, \dots, RS_L$ ) within the relevant data packet group (GM) can be determined;
- The data packet groups (GM) are sent to a receiver (UE).

17. Receiver for receiving digital information packets in a method in accordance with one of the claims 1 to 15, with the receiver (UE) being embodied to enable it to carry out the following steps:

- The information packets ( $I_1, I_2, \dots, I_M$ ) and redundancy packets ( $RS_1, RS_2, \dots, RS_L$ ) sent by an emitter are received;
- The signalisation fields (AS) of the received information packets ( $I_1, I_2, \dots, I_M$ ) and redundancy packets ( $RS_1, RS_2, \dots, RS_L$ ) are read out, and with the aid of the information in the signalisation fields (AS), the positions of the information packets ( $I_1, I_2, \dots, I_M$ ) and redundancy packets ( $RS_1, RS_2, \dots, RS_L$ ) in the relevant data packet groups (GM) are reconstructed.